DREDGE
8

Adam Seamount

3250 – 3140 m

SAMPLE ID	*Mn CHEM	Pt & Au*	REE *	Si Chem*	T.Sects.	35mm Pho	Archive	Paleo	XRD				
D8-1	Bulk			Basalt	TS								
D8-2	Layers/Bulk	Layers/Bulk	Bulk		d.p.s.								
D8-3	Layers/Bulk	Layers	Layers		d.p.s.								
D8-4													
D8-5 (dup)	Bulk	Bulk	Bulk										
D8-6													
D8-7													
D8-8													
D8-9									nucleus & nodule				
D8-10									nucleus & nodule				
D8-11													

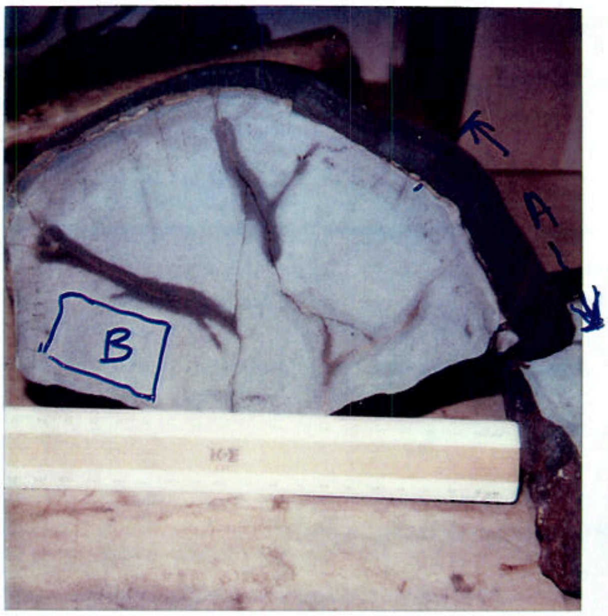
* All chemistry samples have XRD mineralogy done also.

Basalt maybe datable

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: 25x23x11 Location: Adam

Sample Id: D8-1 Weight: 8.4 kg Depth: 3250-3170 m



Mn Crust Description

Surface Texture: Smooth, granular on side

Mn Crust Thickness:
Min: 1 Max: 22 Ave: 12

Layers (Outer to Inner):

	Min	Max	Ave	Texture
1.				
2.				
3.				
4.				
5.				
6.				

Comments and XRD Mineralogy:

Laminated Brown Crust -- The thicker parts have an inner massive brown layer --

Laminated Brown Crust -- The
thicker parts have an inner
massive brown layer --

Substrate Description

Rock Type: Basalt

Description:

Finely vesicular basalt

layers of mud between crust + basalt

sampled for glass
good for bulk chem.

Finely vesicular basalt

layers of mud between
crust + basalt

sampled for glass
good for bulk chem.

ANALYSES

Subsample & Type	Analysis	Weight
D8-1A Bulk	CC	0--18 mm, complete w/ lower massive layer
D8-1B	OC	basalt
	TS	"
D8-1C	glass for	probe (A.D.)
chip piece	taken for	[illegible] chem.

Described By: dj Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: _____ Location: Adam

Sample Id: D8-2 Weight: _____ Depth: 3250 - 3170m

Mn Crust Description

Surface Texture: Smooth

Mn Crust Thickness:
Min: 55 Max: 68 Ave: 65

Layers (Outer to Inner):

	Min	Max	Ave	Texture
1.	8	13	12	Laminated - brown
2.	22	26	25	massive w/ 3
3.				wavy laminae + phosph. blobs
34.	25	32	28	
5.				
6.				

D8-2

F7-87-SC

Comments and XRD Mineralogy:

some phosphorite blobs floating in Nodule ?

Nodule 2 w/ old Crust on Nucleus (probably)

Bottom Layer has rusty? layers between Mn layers Bottom layer more resinous than other layers

ANALY.

Subsample & Type	Analysis	Weight
A, REE, D	CC	bulk
B Pb, Au	CC	12 mm
C Pb, Au	CC	25 mm
D Pb, Au	CC	28 mm
A	dp+s	

Substrate Description

Rock Type: NONE

Description:

B, C, D Not submitted for REE

B REE missing —

Described By: dj Subsampled By: Dawn B

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: 18x13x6 cm Location: Adam

Sample Id: D8-3 · 3 Weight: 1kg Depth: 3250 - 3270 m

Mn Crust Description

Surface Texture: Smooth

Mn Crust Thickness:

A Min: 25 Max: 50 Ave: 35 mm

Layers (Outer to Inner):

	Min	Max	Ave	Texture
B 1.	5	6	5	laminated, brown
C 2.	3	20	12	thickly laminated (ave 3mm-12mm) black w/ wavy laminae + phosphate slabs
3.				
D 4.	17	21	9	massive brown with abundant phosphate along perpendicular fractures + basalt fragments
5.				
6.				

D8-3

F7-87-SC

Comments and XRD Mineralogy:

Substrate Description

Rock Type: None

Description:

ANALYSIS

Subsample & Type	Analysis	Weight
	CC, REE	(50mm)
	CC	(5mm)
	CC	(12mm)
	CC	(19 mm)
3B	Pt, Au	
3B	REE	
3C	Pt, Au	
3C	REE	
3D	Pt, Au	basalt fragments
3D	REE	
3A	dpts	

Note: Basalt fragments may be in chem samples

Described By: AB Subsampled By: AB

SAMPLE DESCRIPTION

misc. crust fragments

Cruise Id: F7-87-SC Size: < 18 x 11 x 5 cm Location: Adam

Sample Id: D8-4 Weight: (total) ~ 1 kg Depth: 3250-3170 m

Mn Crust Description

Surface Texture: smooth granular on side of one piece (grains <2mm diam)

Mn Crust Thickness:

Min: 17 Max: 50 Ave: 30

Layers (Outer to Inner): 2 pieces have 3 layers, 3 " 2 layers

Min	Max	Ave	Texture
1.			
2.			
3.			
4.			
5.			
6.			

D8-4

F7-87-SC

Comments and XRD Mineralogy:

Miscellaneous crust fragments with common phosphate laminations

ANALYSES

Subsample & Type	Analysis	Weight

Substrate Description

Rock Type: None

Description:

Described By: LG Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: 6 cm 3 Location: Adam

Sample Id: D8-5 Weight: Depth: 3250 - 3170 m

Mn Crust Description

Surface Texture: lizard skin

Mn Crust Thickness:

Min: Max: Ave:

Layers (Outer to Inner):

	Min	Max	Ave	Texture
1.				
2.				
3.				
4.				
5.				
6.				

D8-5

F7-87-SC

Comments and XRD Mineralogy:

large irregular fracture filled w/sediment to one side phosphate fracture fillings common

ANALYSES

Subsample & Type	Analysis	Weight
	CC	
	SEM	
	Pb, Au	

Substrate Description

Rock Type:

Description:

Described By: Subsampled By: Jorie

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: [illegible] Location: Adam

Sample Id: D8-6 Weight: 0.7 kg Depth: 3250 - 3170 m

Mn Crust Description

Surface Texture: lizard skin

Mn Crust Thickness:

Min: 2 Max: 12 Ave: 11

Layers (Outer to Inner):

	Min	Max	Ave	Texture
1.				All laminated
2.				occasional larns + fracture fillings
3.				+ blebs
4.				
5.				
6.				

D8-6

F7-87-SC

Comments and XRD Mineralogy:

lobate + spherical
nodules with nuclei of old Mn crusts.

all nodules are laminated and have occasional larns + fracture fillings + blebs of phosphate

pelagic mud w/ occasional sand sized detrital grains present in nodule --> marked

ANALYSE

Subsample & Type	Analysis	Weight

Substrate Description

Rock Type: old Mn Crusts

Description: Angular crusts are laminated and generally have [illegible]

Described By: LB

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: 3ve 9 x 7 x 4 cm Location: Adrian

Sample Id: D8-7 Weight: ~250 gm Depth: 3250 - 3170

Mn Crust Description

Surface Texture: botryoidal

Mn Crust Thickness:

Min: 1mm Max: 10mm Ave: 5mm

Layers (Outer to Inner):

	Min	Max	Ave	Texture
1.				
2.				
3.				
4.				
5.				
6.				

D8-7

F7-87-SC

Comments and XRD Mineralogy:

lobate nodules with multiple volcaniclasic nuclei laminated manganese with occasional phosphae larns and blebs surround 1 to 3 nuclei depending on sample

ANALYSES

Subsample & Type	Analysis	V

Substrate Description

Rock Type: Altered volcanic breccia

Description:

Angular orange yellow limonitic fragments (<0.5mm across) are cemented by black aphanistic manganese

Described By: LB Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: [illegible] Location: [illegible]

Sample Id: D8-8 Weight: ~400 gm Depth: 3250 - 3[illegible]m

Mn Crust Description

Surface Texture: [illegible] lizard skin

smooth lizard skin

Mn Crust Thickness:

Min: 4 Max: 8 Ave: 6

(for groups)

Layers (Outer to Inner):

	Min	Max	Ave	Texture
1.	2	3	2	brown, laminated w/ phosphate
2.	2	5	4	black, shiny massive and laminated
3.				
4.				
5.				
6.				

D8-8

F7-87-SC

Comments and XRD Mineralogy:

[illegible]

ANALY

Subsample & Type Analysis

lobate Mn nodules with flat fragments of phosphate rich sediment as nuclei
Mn is generally laminated w/ minor phosphate lams. Some samples have 2 layers of Mn- one brown, one black. Phosphate blebs locally are present

Small nodules commonly stuck to top (see pic on back)

Substrate Description

Rock Type: [illegible]

Manganiferous Greywacke

Description: [illegible]

Fine grained, anguular detrital grains are cemented to a black, hard intersticial Mn + phosphate matrix. Visible grains include shiny silver feldspas... (?) phsophortized shell fragments and orange yellow altered volcanic particles.

Described By: [illegible] Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: [illegible] Location: Adam

Sample Id: D8-9 Weight: [illegible] Depth: 3250-3170m

Mn Crust Description

Surface Texture: smooth

Mn Crust Thickness:

Min: 1mm Max: 5mm Ave: 2mm

Layers (Outer to Inner):

	Min	Max	Ave	Texture
1.				
2.				
3.				
4.				
5.				
6.				

D8-9

F7-87-SC

Comments and XRD Mineralogy:

laminated very black somewhat shiny crust surrounds nuclei of Mn coated tuff (see XRD)

ANALYSES

Subsample & Type	Analysis	Weight
XRD D8-9	XRD	Black nuclei of Mn-Mn? w/ occasional [illegible] blebs

Substrate Description

Rock Type: Tuff

Description:

Very porous black aphanitic material (ash coated with manganese w occasional phosphate blebs (<1mm) filling rugs

Described By: CB Subsampled By: CB

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: [illegible] Location: Adam

Sample Id: D8-10 Weight: [illegible] Depth: 3250-3170

Mn Crust Description

Surface Texture: [illegible]

modified botroidal

Mn Crust Thickness:

Min: [illegible] Max: 4mm Ave: 3mm

Layers (Outer to Inner):

	Min	Max	Ave	Texture
1.				massive, black
2.				
3.				
4.				
5.				
6.				

D8-10

F7-87-SC

Comments and XRD Mineralogy:

Massive black Mn has sparse and fine grained phosphate blebs

ANALYSE

Subsample & Type	Analysis	Weight
D8-10	XRD & nucleus	

Substrate Description

Rock Type: Mn coated tuff

Mn coated tuff

Description:

see D8-9□
this rock has large 4mm phosphate blebs in addition

Described By: [illegible] Subsampled By: [illegible]

SAMPLE DESCRIPTION

Cruise Id: F7-87-SC Size: 70 × 50 × 30 cm Location: Adam

Sample Id: D8-11 Weight: 50 gm Depth: 3250 - 3170

Mn Crust Description

Surface Texture: lizard skin

Mn Crust Thickness:
Min: 2 Max: 21 mm Ave: 16 on top, 4 on bottom

Layers (Outer to Inner):

	Min	Max	Ave	Texture
1.				
2.				
3.				
4.				
5.				
6.				

Comments and XRD Mineralogy:

Black laminated crust surrounds dual nucleus of (1) old Mn crust and (2) sediment.
Very minor phosphate in core

Nucleus
Substrate Description

Rock Type: Sediment + old Mn crust

Description: phosphate - rich
old Mn crust has [illegible] colloform bands (see pic other side)
greenish sediment has [illegible] visible detrital grains
& [illegible]
possibly [illegible]

ANALYSES

Subsample & Type	Analysis	Weight

Described By: LB Subsampled By: